## THE FUTURE OF SHIPPING, CHALLENGES AND POSSIBILITIES

# Breaking Vaves



Emanuele Grimaldi Keynote speech Helsinki 21st Nov 2019 DIGITALIZA TION Net based technologies Robotics/drones

Rationalization
- staff costs
- human error

Economies of scale Capital intensity R&D expenses







### #IMO #ICS #CLEANALLIANCE2020 #R&D #GRIMALDIGROUP #EU #PEOPLE

Ime



#### Direct and undirect costs of transportation

of Ro-pax pax/cargo on a long Tyrrenian Sea route



Source: D'Apollonia consulting , Oct 2015

## A SHARED GREEN TARGET

Past ambition: Carry more, *consume same* 

IMO 2030: Carry more, consume 40% less Old mind: Carry more, consume more

IMO near 2050. emission ship n

### Alternative fuels

#### hydrocinamics

### RESEARCH& DEVELOPMENT

CDI

### EXHAUST GAS CLEANING SYSTEMS

Speed contro

LEDLAMPS

battery

packs

### Short term incremental changes - the Finnlines case

Lenghtenings and

jumboization

1119 000

Exhaust gas cleaning system

rebladings

or ne

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paintino

### 2008-2018 EMISSION REDUCTIONS: CO2 -30 % / SOX -93%

Rotations rationalization



#### LONG TERM TARGET : ZERO or NEAR TO ZERO EMISSION SHIPS

### HOW TO GET THERE:

• O Hydrogen, fuel cells, ammonia : what mix?

O Team up for R&D?

O New market mechanism for shipping?

O New use for scrubber technology?O The time-to-impact issue

# WHERE ARE WE NOW?

FEW SHARED POINTS TO START WITH

The work to do is a lot

No start from scratch Act now for 2030/2050 Only dynamic players will win

Shipowners can't do it alone

